

Title (en)
NOVEL CHONDROCYTE INDUCTION METHOD

Title (de)
NEUARTIGES CHONDROZYTENINDUKTIONSVERFAHREN

Title (fr)
NOUVEAU PROCÉDÉ D'INDUCTION DE CHONDROCYTES

Publication
EP 3064577 A4 20170412 (EN)

Application
EP 14857348 A 20141031

Priority
• JP 2013228822 A 20131101
• JP 2014104162 A 20140520
• JP 2014079117 W 20141031

Abstract (en)
[origin: EP3064577A1] Provided is a method for producing chondrocytes from pluripotent stem cells, the method comprising the steps of: (i) inducing pluripotent stem cells to differentiate into mesodermal cells in adherent culture, (ii) culturing the cells obtained by step (i) in adherent culture in a medium containing one or more substances selected from the group consisting of BMP2, TGF² and GDF5, and (iii) culturing the cells obtained by step (ii) in suspension culture in a medium containing one or more substances selected from the group consisting of BMP2, TGF² and GDF5. Also provided is a pharmaceutical product comprising the chondrocytes obtained by the method.

IPC 8 full level
C12N 5/077 (2010.01); **A61K 35/32** (2015.01); **A61L 27/00** (2006.01); **A61P 19/08** (2006.01); **C12N 5/071** (2010.01); **C12N 5/10** (2006.01)

CPC (source: EP KR US)
A61K 35/32 (2013.01 - KR US); **A61P 19/00** (2017.12 - EP); **A61P 19/08** (2017.12 - EP); **C12N 5/0655** (2013.01 - EP KR US); **C12N 2500/25** (2013.01 - EP US); **C12N 2500/38** (2013.01 - EP US); **C12N 2501/115** (2013.01 - EP US); **C12N 2501/15** (2013.01 - EP KR US); **C12N 2501/155** (2013.01 - EP KR US); **C12N 2501/16** (2013.01 - EP US); **C12N 2501/19** (2013.01 - EP KR US); **C12N 2501/415** (2013.01 - EP US); **C12N 2506/45** (2013.01 - EP KR US); **C12N 2513/00** (2013.01 - EP US); **C12N 2533/54** (2013.01 - US)

Citation (search report)
• [XYI] ROSA M. GUZZO ET AL: "Efficient differentiation of human iPSC-derived mesenchymal stem cells to chondroprogenitor cells", JOURNAL OF CELLULAR BIOCHEMISTRY, vol. 114, no. 2, 17 February 2013 (2013-02-17), pages 480 - 490, XP055085463, ISSN: 0730-2312, DOI: 10.1002/jcb.24388
• [XYI] NORIAKI KOYAMA ET AL: "Human Induced Pluripotent Stem Cells Differentiated into Chondrogenic Lineage Via Generation of Mesenchymal Progenitor Cells", STEM CELLS AND DEVELOPMENT, vol. 22, no. 1, 1 January 2013 (2013-01-01), NL, pages 102 - 113, XP055337173, ISSN: 1547-3287, DOI: 10.1089/scd.2012.0127
• [XYI] OLDERSHAW RACHEL A ET AL: "Directed differentiation of human embryonic stem cells toward chondrocytes", NATURE BIOTECHNOLOGY, NATURE PUBLISHING GROUP, UNITED STATES, vol. 28, no. 11, 1 November 2010 (2010-11-01), pages 1187 - 1194, XP009153843, ISSN: 1546-1696, DOI: 10.1038/NBT.1683
• [XYI] HEE HUN YOON ET AL: "Enhanced Cartilage Formation via Three-Dimensional Cell Engineering of Human Adipose-Derived Stem Cells", TISSUE ENGINEERING PART A, vol. 18, no. 19-20, 1 October 2012 (2012-10-01), US, pages 1949 - 1956, XP055349876, ISSN: 1937-3341, DOI: 10.1089/ten.tea.2011.0647
• [XYI] AKIHIRO YAMASHITA ET AL: "Identification of Five Developmental Processes during Chondrogenic Differentiation of Embryonic Stem Cells", PLOS ONE, vol. 5, no. 6, 7 June 2010 (2010-06-07), pages e10998, XP055350245, DOI: 10.1371/journal.pone.0010998
• [XAI] HIDETATSU OUTANI ET AL: "Direct Induction of Chondrogenic Cells from Human Dermal Fibroblast Culture by Defined Factors", PLOS ONE, vol. 8, no. 10, 16 October 2013 (2013-10-16), pages e77365, XP055350255, DOI: 10.1371/journal.pone.0077365
• [IA] YIYONG WEI: "Chondrogenic differentiation of induced pluripotent stem cells from osteoarthritic chondrocytes in alginate matrix", EUROPEAN CELLS AND MATERIALS, vol. 23, 1 January 2012 (2012-01-01), pages 1 - 12, XP055253031
• [IA] WEI-HONG CHEN ET AL: "In vitro stage-specific chondrogenesis of mesenchymal stem cells committed to chondrocytes", ARTHRITIS & RHEUMATISM, vol. 60, no. 2, 1 February 2009 (2009-02-01), US, pages 450 - 459, XP055350261, ISSN: 0004-3591, DOI: 10.1002/art.24265
• [T] AKIHIRO YAMASHITA ET AL: "Generation of Scaffoldless Hyaline Cartilaginous Tissue from Human iPSCs", STEM CELL REPORTS, vol. 4, no. 3, 1 March 2015 (2015-03-01), United States, pages 404 - 418, XP055350263, ISSN: 2213-6711, DOI: 10.1016/j.stemcr.2015.01.016
• See references of WO 2015064754A1

Cited by
WO2021173066A1; EP3974519A4; EP3260536A4; EP3698802A4; EP3900787A4; US10557121B2; WO2018114832A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
EP 3064577 A1 20160907; EP 3064577 A4 20170412; EP 3064577 B1 20200909; JP 2020036622 A 20200312; JP 6635505 B2 20200129; JP 7166631 B2 20221108; JP WO2015064754 A1 20170309; KR 102219743 B1 20210223; KR 20160068982 A 20160615; US 10100283 B2 20181016; US 2016251623 A1 20160901; WO 2015064754 A1 20150507

DOCDB simple family (application)
EP 14857348 A 20141031; JP 2014079117 W 20141031; JP 2015545332 A 20141031; JP 2019224335 A 20191212; KR 20167014549 A 20141031; US 201415032705 A 20141031